

## The work on zero-emissions vehicles and zones in Oslo

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Within the project Sustainable Nordic Cities with Focus on Climate Smart Mobility, this subproject focuses on zero-emission vehicles (ZEV) and zones. It is a study of the effects of ZEV introduction and environmental zones in Nordic cities and amongst other aims, highlight good examples. Within the framework of the project, three cities in the Nordic region were visited. The purpose of the visit to Oslo was to meet key players and gain a deeper insight and understanding of the opportunities and obstacles for various actions and activities for introduction of ZEV. Oslo was selected since it is a large size city in Norway that has been successful in the introduction of electric cars and has a special version of zones that combine road pricing with emission restrictions.

In Norway, the strategy for introducing electric cars is that the state made it cheap to buy it, and the municipalities made it easy to use it. This has been a very successful strategy. Another simple success principle is that it should be convenient to use an electric car (charging, parking, driving in bus lanes etc.).

Today there are several electric car models available on the market. In Oslo the majority of the electric cars are fully electric (BEV) which are subjected to the most subsidies but mostly not applied to plug-in hybrids (PHEV). Norwegian political initiatives target BEVs rather than PHEVs, the tax exemptions for PHEVs and hybrid vehicles have been drastically reduced during the year 2018. Electric cars were first a phenomenon among richer people in western Oslo, but “today you can’t afford to Not buy an electric car”, according to an official. In March 2019, about 77% of the new car sales were electric cars in Oslo municipality. The national grid and the regional grid have strong capacity in Norway with extensive charging possibilities, however the local grid may have some weaknesses in some areas. Since 2018, there has been support for cooperatives and companies to install chargers and last year 20 000 charging points were financed in multi-apartment buildings.

Taxis have not been subsidized, but the municipality and the taxi companies have a common strategy that before 2023, all taxis should be ZEV (BEV or hydrogen). This is possible through a national legislation where the cities may impose environmental requirements like this. There are also investments in wireless taxi charging and there has been a change in the law that you must charge if you park at a charging point with a time limit of maximum three hours (charging is not free).

The municipality also using biogas garbage trucks (own vehicles) and hire companies using electric garbage trucks, some only runs electric vehicles. Oslo city will soon have around 300 electric buses running (from today's 120) of about a total 1800, however the electric buses dominates in central parts and the non-electric buses are also running far outside Oslo's borders. Additionally, Oslo has around 190 gas buses, 5 hydrogen powered buses and 380 plug-in hybrid buses. Gas buses (regardless of the origin of the gas) are not counted as ZEV. By 2020, the municipality's own vehicles will all be ZEV or run on biofuels, however EU legislation must be followed when procuring. Norway is a part of the EU's inner market and must follow all EU's economic legislation. This is a problem because of bureaucracy, very long procedures,

documentations and regulations, especially for small companies and starts-ups that want to test their new technologies.

The official explanation why low emission zones (LEZ) are not applied in Oslo is that the national government claims that environmentally differentiated road tolls cannot be combined with LEZ, since the drivers will then be “double taxed”. There are discussions about a zero-emission zone within Ring 3 but it would not cover only transportation, but all emissions (and not decided). Zero-emission zones were tested for heavier vans, but the national government could not accept it because of political conflicts between the national and municipal levels.

Several streets in the city center are unidirectional without parking places on the streets for private cars, but there are still private parking houses and handicap parking (HC) that has increased greatly. There are also dedicated parking spaces for vans, craftsmen etc., but they are not free and with a maximum parking time of 8 hours. About 20/1000 of these places are reserved for electric vehicles but this will be expanded. Year, 2018 only 2-3% were electric cars in Oslo municipality, now 17% of new vans are electric. Parking spaces have been transformed to other urban use, i.e. playgrounds, but under some criticism from the public. There has been worries about accessibility and there is still a challenge with the elderly or those who have difficulty walking but do not have HC status. The total number of public parking lots has increased heavily but cost more, so the total income from parking fees has increased in spite the fact that BEV park for free. This has “solved” the financial problems. The overall coverage is only around 38% because of the high prices, but still profitable due to efficient operation.

There is a debate about whether to set requirements for ZEV on car sharing cars (for example in car pools). Diesel cars will probably not be completely banned, but the car sharing will be more and more attractive. Driving in bus lanes at rush hours with electric cars was first allowed, but now it requires at least two in the car, which means that "private car sharing" was achieved.

Three study visits were conducted in Oslo:

**Fortress garage.** Garage with 86 parking places with electric charging (run and owned by the City- at the same time a bomb shelter), still free to charge and park. The location is very central and attractive and with a high level of security. The garage is located below the city center, which is now completely car-free. The tunnels are financed with road tolls.

**Oslo city HUB.** Low-carbon city distribution center. The centrally-located new terminal will reduce CO<sub>2</sub> emissions of city goods distribution by 80%, using electric cars and e-bikes. Oslo City Hub is part of Electric City, the Oslo district's focus on activities associated with its status as European Green Capital 2019.

**The bus end station.** Ruter's (public transport company in Oslo) buses are charging slowly in the garage during the night and then they are charged seven minutes at the end stop of the bus line. The goal is that all public transportation should be fossil-free in 2020 and emission-free in 2028.